WHAT IS CLAIMED IS:

1. A method for determining the charge drawn by an energy storage battery starting from an initial state of charge at the start of the drawing of the charge, the method comprising:

determining the charge drawn as a function of an exponential function with a time constant, wherein the time constant is defined at least as a function of the energy storage battery type and of the temperature of at least one of the battery temperature and the electrolyte temperature.

2. The method of Claim 1 wherein the time constant is also defined as a function of the state of charge at the start of the drawing of the charge.

3. The method of Claim 2 wherein the time constant is also defined as a function of at least one of a charging voltage, a mean charging voltage and a rated charging voltage.

4. The method of Claim 1 further comprising determining the absolute amount of charge drawn according to the function

$$\Delta Q \approx (1 - e^{-t/\tau}) (Q_0 - Q_s),$$

where ΔQ is the absolute amount of charge drawn, Q_0 is the defined rated capacity of the energy storage battery, and Q_s is the initial charge of the energy storage battery at the start of the drawing of the charge.

5. The method of Claim 1 further comprising determining the relative state of charge of the energy storage battery with respect to the rated capacity of the energy storage battery according to the function:

$$Q(t)/Q_0 \approx 1 - (1 - Q_s/Q_0)^{-t/\tau}$$

where $Q(t)/Q_0$ is the relative state of charge of the energy storage battery, Q_0 is the rated capacity of the energy storage battery, and Q_s is the initial charge of the energy storage battery at the start of the drawing of the charge.

6. The method of Claim 1 further comprising determining a first correction factor for the time constant, the first correction factor being determined using the formula:

$$\tau_T = a^{-(T_e - Te,0)/b}$$

where τ_T is the first correction factor, T_e is the electrolyte temperature of the energy storage battery, $T_{e,0}$ is a defined electrolyte nominal temperature, and a and b are constants.

7. The method of Claim 6 wherein the constant a has a value between 1.5 and 2.5 and the constant b has a value between 9 and 11.

8. The method of Claim 6 further comprising determining a second correction factor for the time constant, the second correction factor having a value between 1 and $1 - Q_s/Q_0$.

9. A monitoring device for energy storage batteries comprising:

a device for measuring battery temperature; and

a computation device for determining the charge drawn by an energy storage battery starting from an initial state of charge at the start of the drawing of the charge;

wherein the computation device is designed to carry out a method comprising:

determining the charge drawn as a function of an exponential function with a time constant, wherein the time constant is defined at least as a function of the energy storage battery type and of the temperature of at least one of the battery temperature and the electrolyte temperature.

10. A computer program comprising:

computer program code designed to carry out a method when the computer program is run using a processor device, the method comprising:

determining the charge drawn by an energy storage battery as a function of an exponential function with a time constant, wherein the time constant is defined at least as a function of the energy storage battery type and of the temperature of at least one of the battery temperature and the electrolyte temperature.

11. The computer program of Claim 10 wherein the computer program is a program file stored on a data storage medium.